assumes an erect position while the stamens with the petals spread outward and form the inverted cone described above. The anthers do not open until about dusk, when every thing is ready for the welcome visitors. These are attracted by a large drop of delicious nectar lodged between the bases of the petals and the pistil, on the torus. The repast is advertised by the four bright purplish-pink petals which stand just above it. These remain open the whole night, but as the sun rises the following morning their bright color begins to fade, and they with the stamens commence to droop, by the end of thirty-six hours they are ready to drop.

The whole plant is covered with a glandular pubescence and gives off a rank disagreeable odor; while the flower alone has a slight pleasant balsamic odor.

Its principal visitors are the various species of humming-bird moths, humming-birds, honey bees and a number of wasps. The first and second of these appear to be the most beneficial, and are the most frequent visitors. In the act of taking honey both usually poise on their wings before the flower; in doing so the circle of motion formed by the outer points of the wings is just inside of the inverted cone formed by the six stamens and four petals. The pollen is thus scattered in all directions and thrown on the stigmas which are just ready to be fertilized.

Another interesting phenomenon observed was that as the cool nights of autumn came on the stamens grew shorter and finally before they were killed by frost the anthers were nearly sessile, while the pistils continued to be either long or short as during the summer.

I am unable to give a satisfactory explanation of the regular interruptions of the spikes. At first I thought it was due to wet and dry periods, but further observation has contradicted this theory. Besides the various spikes on the same plant are frequently in opposite stages, some bearing short abortive pistils in their flowers, while other spikes are producing long and fertile forms.—J. SCHNECK, *Mt. Carmel, Ill.*

**Observations on Enslenia albida.**—WITH PLATE XIII.—In *Enslenia albida* Nutt. one of the axillary buds at each node is much stronger and more forward than the other, and forms branches while the other remains almost or quite latent. At first the weaker bud can scarcely be seen, but it becomes more prominent later and may finally develop several internodes, but never makes such great growth as the stronger, unless injury to the terminal and other axillary bud necessitates its further development. The more potent axillary buds form a continuous spiral, either right or left, and frequently right and left on different branches of a single plant.

An alternate pubescent line found on the stem is always on the side of the axis on which the stronger axillary bud occurs, and on the first internode of each branch on that side of the branch next the axis from which it arises. In rare instances the two axillary buds were found almost equally developed, in which case the main axis has two pubescent lines. As these strong axillary buds are apparent even before the leaves to which they are axillary unfold, they are an obstacle to free growth and also points of greatest pressure in the bud. It would seem from this that the utility of pubescence is in this case to protect the delicate forming parts from the effects of pressure and friction in the bud.

In accordance with this view the axis, which has a more rapid growth than the leaves, has its pubescence directed downward, while that of the leaves is directed upward toward the apex, thus offering the least possible resistance to growth.

Both Gray[1] and Wood,[2] in their descriptions of this plant, say that the flower-clusters are axillary, but it appears that the peduncle arises not from an axillary bud but at the side of the axillary bud which is in its normal position. The absence of the axillary bud of the opposite leaf explains this apparent anomaly. Instead of the flower-cluster arising from an axillary bud it terminates the axis and each succeeding internode of the stem arises from the stronger axillary bud of the preceding internode.

Gray describes the inflorescence as a raceme-like cluster and Wood calls it a racemous umbel. The raceme and umbel both properly belong to the indeterminate or botryose type of inflorescence, while the flower-clusters of Enslenia follow out the same determinate plan exhibited by the terminal position of the peduncles. This results in that form of the scorpioid cyme known as a bostryx, development following the same spiral in the inflorescence as that noted in the stem; thus the plane of each pedicel is at right angles to that preceding, and the fifth internode bears a flower opposite the first, and the sixth opposite that borne by the second, etc.

The development of the weaker axillary bud into a flower doubles the number of flowers in the spiral and thus it occurs that the ninth flower stands opposite the first.

Anthesis takes place in the order of the successive divisions of the axis and is in this order: first, third, fifth and second, seventh and fourth, ninth and sixth, etc., each pair of numbers corresponding to the buds arising from one node.

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[1] Manual of Botany 343. 1889. [6th ed.].
[2] Class Book of Botany 595. 1880.

The pollinia are quite small and occupy only the upper portion of the anther. They are almost cylindrical and are attached to the anther by placentæ which break away with the pollinia forming a hyaline line along their outer sides as arranged in pairs.

The pollinia of Asclepias with which they are usually compared are larger, occupying the anther from base to apex. They are quite flat and do not exhibit the hyaline line seen in Enslenia.—GEO. H. SHULL, *Sulphur Grove, Ohio.*

EXPLANATION OF PLATE XIII.—Fig. 1. *Enslenia albida* Nutt., a node and cluster of flowers. × 1.—Fig. 2. Diagrammatic view of the inflorescence reduced to a single plane.—Fig. 3. Anther with its appendage. × 10.—Fig. 4. Section near the summit of the central column showing the arrangement and attachment of the pollinia. × 27.—Fig. 5. Section near the base of the central column showing anthers quite empty. × 27.—Fig. 6. Pollinia. × 32.—Fig. 7. Pollinia of *Asclepias incarnata* L. × 32.

**On the development of the bulb of the adder's-tongue.**—WITH PLATE XIV.—In the BOTANICAL GAZETTE for February, 1894, I presented results of observations made in 1893, upon the adder's-tongue, or spring Lily (*Erythronium Americanum* Ker.), and will here add, results of observations made in 1894 in hopes that as soon as the weather admits others will begin to make observations that may aid in determining questions of growth.

Here at New Brunswick, N. J., the flowers are about a week later than in the vicinity of Washington, D. C., and nearly a week earlier than in the vicinity of Springfield, Mass., the blossoms of the Erythronium being about their prime here on April 27th last year; the runners being at their best about May 5th, and the seeds ripe June 13th. The seeds are not easily found except when the exact spot where the plants grow has been previously noted carefully, for very soon after blooming the plants begin to decay and often the seeds ripen with the ovary on the ground, the remnants of the plant being prostrate and partly hidden by later growths of vegetation. By the first of May the profusion of bloom had passed and buds were found only in sheltered spots.

In the vicinity of Washington the anthers of *E. Americanum* Ker. observed were almost invariably dark brown; here the anthers observed were most frequently yellow, although the brown anthers were not rare. No direct relation was observed between the color of the anthers and the blotching on the leaves, as dark anthers were found on some plants whose leaves were free from brown, but freely blotched with white. The yellow anthers are often found associated with leaves thickly sprinkled with brown spots. All stages between these two extremes were found. As regards fertility, no comparative